ABSTRACT OF THE DISCLOSURE

A projection-type linear encoder has a moving grating plate formed with a set of photodiodes for detecting an origin position and a reflective grating plate formed with reflective grating sections for detecting an origin position. The set of photodiodes for detecting an origin position includes photodiodes (5Z, 5Z1, 5Z', 5Z1') that are aligned in accordance with an alignment pattern produced using random numbers, and the reflective grating sections for detecting the origin position include reflective grating sections and non-reflective grating sections that are wider than grating sections for detecting an A phase signal and a B phase signal similarly disposed in accordance with an alignment pattern produced using random numbers. The origin position of the moving grating plate can be precisely detected based on a differential signal of photodiodes (5Z) and photodiodes (5Z') and a differential signal of photodiodes (5Z1, 5Z1') that differ in phase by 90° to the photodiodes (5Z, 5Z').